

AMENDMENTS TO THE CLAIMS

1.-18. (CANCELED).

19. A method for extracting mineral deposits in a mineral reserve comprising:

contour mining to expose at least a portion of the mineral reserve, thereby forming a highwall and a bench;
creating an insertion highwall in a portion of the highwall between a pair of endwalls;
and
extracting mineral deposits by mining from one endwall to another in a direction of production and advancing into the mineral reserve in a direction of mining substantially perpendicular to the insertion highwall.

20. The method of claim 19, wherein the step of advancing into the mineral reserve is accomplished by repeating the step of extracting mineral deposits by mining from one endwall to another.

21. The method of claim 20, wherein the direction of production for extracting mineral deposits during each subsequent pass from one endwall to the other endwall is reversed.

22. The method of claim 21, wherein the reversible direction of production is substantially parallel to the insertion highwall.

23. The method of claim 20, further comprising ventilating each successive passage formed by moving between the endwalls.

24. The method of claim 19, wherein the highwall is substantially straight between the endwalls.

25. The method of claim 19, wherein the step of extracting mineral deposits is accomplished using shortwall mining techniques.

26. The method of claim 19, wherein the step of extracting mineral deposits is accomplished using longwall mining techniques.
27. The method of claim 19, further comprising providing roof support for mining equipment as minerals are extracted between the endwalls.
28. The method of claim 27, further comprising advancing roof support as mining continues in the direction of mining, whereby the roof collapses behind the roof supports.
29. A method for extracting mineral deposits in a mineral reserve accessible from a sloping surface, comprising:
- mining the sloping surface to create a highwall, thereby forming a bench;
 - forming an insertion highwall in a portion of the highwall generally perpendicular to a desired direction of mining the mineral reserve, thereby forming endwalls on opposing ends of the insertion highwall;
 - cutting a starter entry into the mineral reserve across the entire length of the insertion highwall between the endwalls; and
 - inserting roof supports into the starter entry and backfilling a portion of the starter entry with spoil to form a starter passage between the endwalls.
30. The method of claim 29, further comprising:
- successively mining the mineral reserve moving from one endwall to the other in a direction of production to extract mineral deposits therefrom thereby forming at least one successive passage advancing in the direction of mining; and
 - providing roof support for successive passages resulting from the extraction of mineral deposits from the mineral reserve.
31. The method of claim 29, further comprising ventilating the starter passage at one of the endwalls.

32. The method of claim 29, further comprising:
 positioning one canopy at one end of the starter passage adjacent an endwall; and
 positioning another canopy at the other end of the starter passage adjacent the other endwall.
33. The method of claim 32, further comprising coupling a reversible ventilation fan to at least one of the canopies to ventilate the starter passage.
34. The method of claim 29, wherein the step of mining the sloping surface is accomplished by contour mining.
35. The method of claim 29, wherein the bench is adapted to support mining equipment.
36. The method of claim 29, further comprising:
 creating at least one power substation disposed on the bench to provide power to mining equipment.
37. The method of claim 29, wherein the roof supports are inserted via a shield carrier.
38. The method of claim 29, further comprising:
 forming a safety bench above the insertion highwall and parallel to the bench.
39. The method of claim 30, further comprising:
 conveying the mineral deposits from the mineral reserve to a stockpile.
40. The method of claim 29, wherein the backfilling occurs along the roof supports and endwalls to create an air seal along the insertion highwall between opposing endwalls.
41. The method of claim 29, wherein the insertion highwall is generally straight between the opposing endwalls.

42. A method for extracting mineral deposits in a mineral reserve accessible from a sloping surface, comprising:
- mining the sloping surface to create a highwall, thereby forming a bench;
 - forming an insertion highwall in a portion of the highwall generally perpendicular to a desired direction of mining the mineral reserve, thereby forming endwalls on opposing ends of the insertion highwall;
 - successively mining the mineral reserve moving from one endwall to the other in a direction of production to extract mineral deposits therefrom, thereby forming at least one successive passage advancing in the direction of mining; and
 - providing roof support for successive passages resulting from the extraction of mineral deposits from the mineral reserve.
43. The method of claim 42, wherein the direction of production reverses direction between the endwalls for successive passages.
44. The method of claim 42, wherein the bench and highwall extend a first predetermined distance from the insertion highwall to form a first mining stage for mining a first predetermined number of successive passages, and further comprising:
- mining the mineral reserves using the first mining stage to extract mineral deposits from the first predetermined number of successive passages through the mineral reserve.
45. The method of claim 44, further comprising:
- extending the bench and highwall a second predetermined distance from the first predetermined distance to form a second mining stage for mining a second predetermined number of successive passages; and
 - backfilling the first mining stage to recontour the surface with spoil resulting from mining the sloping surface of the second mining stage.
46. The method of claim 42, further comprising:
- ventilating at least one of the successive passages at one of the endwalls of the successive passage.

47. The method of claim 42, further comprising:
 positioning one canopy at one endwall and another canopy at the other endwall to
 provide safe access to the successive passage.
48. The method of claim 47, further comprising:
 coupling a reversible ventilation fan to at least one of the canopies.
49. The method of claim 48, further comprising:
 reversing the reversible ventilation fan after creation of each successive passage.
50. The method of claim 47, wherein the canopies are mobile.
51. The method of claim 50, wherein the step of successively mining the mineral reserve is
 accomplished by a miner, and further comprising:
 removing the miner from the successive passage through one of the canopies at one of
 the endwalls after creation of the successive passage;
 reversing the orientation of the miner;
 reversing the orientation of the ventilation; and
 re-inserting the miner into the mineral reserve adjacent the completed successive
 passage through the one of the canopies at one of the endwalls.
52. The method of claim 51, further comprising:
 advancing the canopies along the endwalls after creation of the successive passage.
53. The method of claim 51, further comprising:
 backfilling the created successive passages with spoil.
54. The method of claim 42, further comprising:
 allowing gob behind the roof supports to collapse in an area behind the roof supports
 after the step of providing roof support for successive passages.

55. The method of claim 42, further comprising:

forming a surface in the highwall generally perpendicular to the desired direction of mining the mineral reserve to create an extraction highwall between opposing endwalls of the highwall extending therefrom, the extraction highwall being on a generally opposite side of the mineral reserve from the insertion highwall.

56. The method of claim 55, further comprising:

mining the mineral reserve moving from one endwall to the other in the direction of production to continue extracting mineral deposits therefrom thereby forming an extraction passage;
removing mining equipment from the extraction passage; and
re-contouring an extraction highwall formed adjacent the extraction passage to approximate an original contour of the sloping surface.

57. The method of claim 42, further comprising:

manually advancing the roof supports in the direction of mining after the creation of each successive passage.

58. The method of claim 42, wherein the step of mining the sloping surface is accomplished by contour mining.

59. The method of claim 42, wherein the bench is adapted to support mining equipment.

60. The method of claim 42, further comprising:

creating at least one power substation disposed on the bench to provide power to mining equipment.

61. The method of claim 60, wherein the at least one power substation is mobile.

62. The method of claim 61, further comprising:

advancing the at least one power substation in the direction of mining relative to the step of successively mining the mineral reserves.

63. The method of claim 42, wherein the roof supports are inserted via a shield carrier.

64. The method of claim 42, further comprising:

forming a safety bench above the insertion highwall and parallel to the bench.

65. The method of claim 42, further comprising:

conveying the mineral deposits from the mineral reserve to a stockpile.

66. The method of claim 42, wherein the insertion highwall is generally straight between the opposing endwalls.